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COLOLOBUS, PSEUDOPIPTOCARPHA, AND *TREPADONIA,* THREE NEW GENERA FROM SOUTH AMERICA (VERNONIEAE: ASTERACEAE)

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Abstract.—Three genera of Vernonieae subtribe Vernoniinae are described as new from South America. *Cololobus* includes three species from the Espirito Santo area of Brazil. The type species, *C. hatschbachii* H. Robinson, is described as new, and combinations are made for *Vernonia rupestris* Gardner and *V. longiangustatus.* The genus is unique in the Vernonieae and most of the Cichorioideae in the short lobes of the disk corollas. *Pseudopiptocarpha* is described from Colombia, and combinations are made for the type, *Vernonia elaeagnoides* H.B.K., and a second species *V. schultzii* Karsten, which have small axillary heads, appressed and short-stalked T-shaped hairs, quadrate raphids in the achene wall, and *Aynia*-type pollen. *Trepadonia* is named from the Andes of northern Peru for the single species *V. mexiae* H. Rob. The genus is similar to *Vernonanthura* H. Robinson but differs in the pyramidally thrysoid inflorescences with long racemiform branches and is unusual in the scandent habit.

Studies of the neotropical Vernonieae have resulted in removal from *Vernonia* Schreb. of most species of that area that were once placed in the genus (Robinson 1980, 1987a, 1987b, 1987c, 1988a, 1988b, 1988c, 1989a, 1989b, 1990, 1992a, 1992b, 1993a, 1993b; Robinson & Funk 1987; Robinson & King 1979). Of the few species of *Vernonia* from South America not transferred, two of the Brazilian species, *V. echioides* Less. and *V. incana* Less., have the decumbent stem bases and wholly cymiform inflorescences of true *Vernonia* and are considered a peripheral element of that genus. There are other isolated species that have been studied and that are awaiting transfer to existing segregate genera. The remaining unplaced species of *Vernonia* in Brazil, Colombia, and Peru that are treated here form three genera here described as new. The Brazilian species are placed here in the new genus *Cololobus.* The genus *Trepadonia* is established for *Vernonia mexiae* H. Robinson (1981) from Peru. *Pseudopiptocarpha* is established for two species from Colombia that have been treated at different times as part of *Vernonia* or, in the case of one species, as part of *Piptocarpha* R.Br.

The pollen grains are measured in Hoyer's solution.

Cololobus H. Robinson, gen. nov.
Type: *Cololobus hatschbachii* H. Robinson
Figs. 1–9

Plantae suffruticosae vel subarborescentes ad 2.5 m altae pauce ramosae. Caules brunnescentes teretes vix striati non fistulosi tomentelli vel in parte glabri in ramis juvenitatis lanati, pilis biformibus interdum uniseriatis base 1–5-septatis in cellulis apicalibus elongatis interdum sessilis T-formibus longe ramosis. Folia alterna, petiolis ad 3 cm longis interdum alatis; laminae subcoriaceae oblongae vel obovatae base acuminatae margine crenulatae vel serrulatae apice obtusae supra puberulae subtus tomentellae et dense glandulo-punctatae, ner-

vis secundariis crebro pinnatis utrinque 12 vel ultra late patentibus. Inflorescentiae thyrsoideo-paniculatae in ramis thyrsoideae in ramulis corymbiformes; bracteis inflorescentiis anguste ellipticis vel linearibus, pedunculis brevibus puberulis. Capitula homogama; involucra late campanulata 4–5 mm alta et 6–8 mm late; bracteae involucri gradatim auctae leniter induratae ovatae vel lanceolatae, exteriores fusco-virides puberulae vel tomentellae ca. 4-seriatae, interiores persistentes pallides plerumque glabrae ca. 2-seriatae in sicco leniter contortae; receptacula epaleacea. Flores 20–30 in capitulo; corollae roseae regulares anguste infundibulares 4.0–6.5 mm longae extus non piliferae, in tubis et faucibus canalibus resiniferis brevibus obsoletis dispositis, tubis superne sensim infundibularibus, faucibus ca. 1.5 mm longis, lobis brevioribus erectis non contortis 0.5–1.3 mm longis extus minute glanduliferis non ductiferis, nervis distaliter vix incrassatis; thecae antherarum 1.0–1.3 mm longae base rotundatae non caudatae; appendices antherarum apicales ovatae 0.3–0.4 mm longae glabrae in parietibus cellularum non incrassatae non ornatae; basi stylorum annuliformiter nodati; rami stylorum 1–2 mm longi non glanduliferi hispiduli; pili stylorum apice rotundati. Achenia matura non visa; achenia immatura ad 1 mm longa glandulifera setulifera et interdum T-formiter pilifera, raphidibus subquadratis; carpopodia breviter obturaculiformia; setae pappi ca. 20 albidae subpersistentes 2.5–5.0 mm longae apice distincte vel non latiores plerumque margine scabridae; squamae exteriores oblongae 0.5–1.0 mm longae extus sublaeves. Grana pollinis in diametro ca. 42 μm tricolporata echinata in areolis omnino in tectis perforatis obsita.

Three Brasilian species from the State of Espirito Santo and nearby areas of Minas Gerais and the Serra dos Orgãos of Ets. Rio de Janeiro are placed here in the new genus *Cololobus*. They are members of the subtribe Vernoniinae, having an enlarged basal style node and the persistent involucral bracts typical of that subtribe. This is in spite of the fact that the style hairs are blunt as in many members of the Piptocarphinae. The position within the Vernoniinae is with *Vernonia* and *Vernonanthura* H. Robinson rather than with the *Lepidaploa* complex as indicated in *Cololobus* by the type A pollen, the lack of hairs on the corollas, and the subquadrate raphids of the achene wall. *Cololobus* has erect, branching stems and thyrsoid inflorescences as in *Vernonanthura,* a genus containing more than 60 species and found throughout the neotropics (Robinson 1992b), but it differs in the form of its corollas.

The corolla of *Cololobus* is its most distinctive feature. The disk corollas are unique in the Vernonieae and among the few in the Cichorioideae with short lobes. Corolla lobes of disk corollas in the Cichorioideae are usually lanceolate or linear. It is the subfamily Asteroideae that usually has shorter lobes in the disk corollas. The lobes in *Cololobus* are 1–2 times as long as wide. There is no evidence of resin ducts in the lobes. Resin ducts in the corollas have not been surveyed extensively in the Vernonieae, but ducts are evident in the lobes of many species of all parts of the genus *Vernonanthura.* Such resin ducts have not been seen elsewhere in Vernonieae, except in the close *Vernonanthura* relative *Trepadonia* H. Robinson. *Cololobus* has only some series of cells in the tube and throat of the corolla that may be rudimentary resin ducts.

The new genus is named *Cololobus* in reference to the abbreviated nature of its corolla lobes.

The three species of *Cololobus* are keyed as follows:

1. Petioles winged to base; stems tomentellous; achenes sometimes with many T-formed hairs having short lower arm and long upper arm; style branches ca. 2 mm long . . *C. rupestris*

Figs. 1–9. *Cololobus*. 1–8. *C. hatschbachii* H. Robinson: 1. Habit; 2. Head; 3. Corolla with anther and style tips; 4. ½ of corolla with included stamens; 5. Style with small basal node; 6. Achene with pappus; 7. Raphids of achene wall; 8. Setula of achene. 9. *C. rupestris* (Gardner) H. Robinson; T-shaped hair from achene from Brade 19780 (US).

1. Petioles not or scarcely winged; stems partly glabrous to tomentellous; achenes with only glands, biseriate setulae, and a few short uniseriate hairs; style branches ca. 1 mm long.
2. Involucral bracts all with erect tips; corolla lobes scarcely longer than wide; tips of pappus bristles broadened, with crowded cells .... *C. longiangustatus*

2. Outer involucral bracts with recurved tips; corolla lobes half again as long as wide; pappus bristles not broadened at tips, without more crowded apical cells ... *C. hatschbachii*

Cololobus hatschbachii
H. Robinson, sp. nov.
Figs. 1–8

Plantae fruticosae 1.5 m altae; caules glabrescentes, internodis 5–10 mm longis. Folia alterna, petiolis 1.0–1.5 cm longis distaliter indistincte delimitatis vix alatis; laminae obovatae 5–9 cm longae 1.5–3.5 cm latae basi anguste cuneatae margine dense serrulatae apice obtusae supra dense pilosulis subtus cinereo-tomentellis et dense fuscate glandulo-punctatae. Inflorescentia anguste thyrsoidea ca. 28 cm altae, ramis thyrsoideis 1.5–5.0 cm longis in ramulis corymbiformibus, superficiis sparse subtomentellis, bracteis primariis anguste ellipticis vel linearibus 0.5–3.0 cm longis, bracteis ramulorum minutis 2–3 mm longis scariosis, pedunculis 1–5 mm longis tomentellis. Capitula late campanulata 7–9 mm alta et lata; bracteae involucri 5- vel 6-seriatae; bracteae exteriores ca. 35 ca. 4-seriatae fuscae ovatae 1.5–2.5 mm longae ca. 0.8 mm latae dense tomentellae apice reflexae; bracteae interiores ca. 22 ca. 2-seriatae flavae lanceolatae ca. 5 mm longae et 0.8 mm latae subglabrae apice non vel leniter reflexae. Flores in capitulo 20–30; corollae lilacinae ca. 5 mm longae, tubis ca. 2.5 mm longis, faucibus ca. 1.5 mm longis, lobis ca. 1 mm longis extus minute glanduliferis; thecae antherarum ca. 1 mm longae; appendices apicales antherarum ca. 0.42 mm longae; rami stylorum ca. 1 mm longi. Achenia immatura ca. 1 mm longa ca. 8-costata inter costam dense setulifera solum basi et apice pauce glandulifera, idioblastae nullae; setae pappi ca. 3.5 mm longae, cellulis apicalibus non densiores non patentiores; squamae exteriores 0.5–0.7 mm longae. Grana pollinis in diametro ca. 42 μm.

Type: Brazil; Espirito Santo: Rod. BR-101, 5–10 km S de João Neiva, paredoes rochosos, arbusto 1.50 m, capitulos lilas, 13 Oct 1992, Hatschbach, Cervi & Silva 58012 (holotype MBM, isotype US).

The species is most easily distinguished by the reflexed tips of the involucral bracts. The stems also are partly glabrous or glabrescent in the type specimen, but the full range of the latter character is not known. The new species lacks the tomentellous stems, winged petioles, longer style branches, or long uniseriate hairs and more uniformly distributed glands on the achene seen in *C. rupestre*. At the same time it lacks the short equilaterally triangular corolla lobes, obvious idioblasts on the achene, and denser more spreading apical cells of the pappus seen in *C. longiangustatus*.

Cololobus longiangustatus
(G. M. Barroso)
H. Robinson, comb. nov.

Vernonia longi-angustata G. M. Barroso, Arq. Jard. Bot. Rio de Janeiro 13:12. 1954. Espirito Santo, Minas Gerais.

Cololobus rupestris (Gardner)
H. Robinson, comb. nov.

Vernonia rupestris Gardner, London J. Bot. 4:114. 1845. Rio de Janeiro, Espirito Santo.

One specimen observed from southwestern Espirito Santo (Brade 19780, US) shows

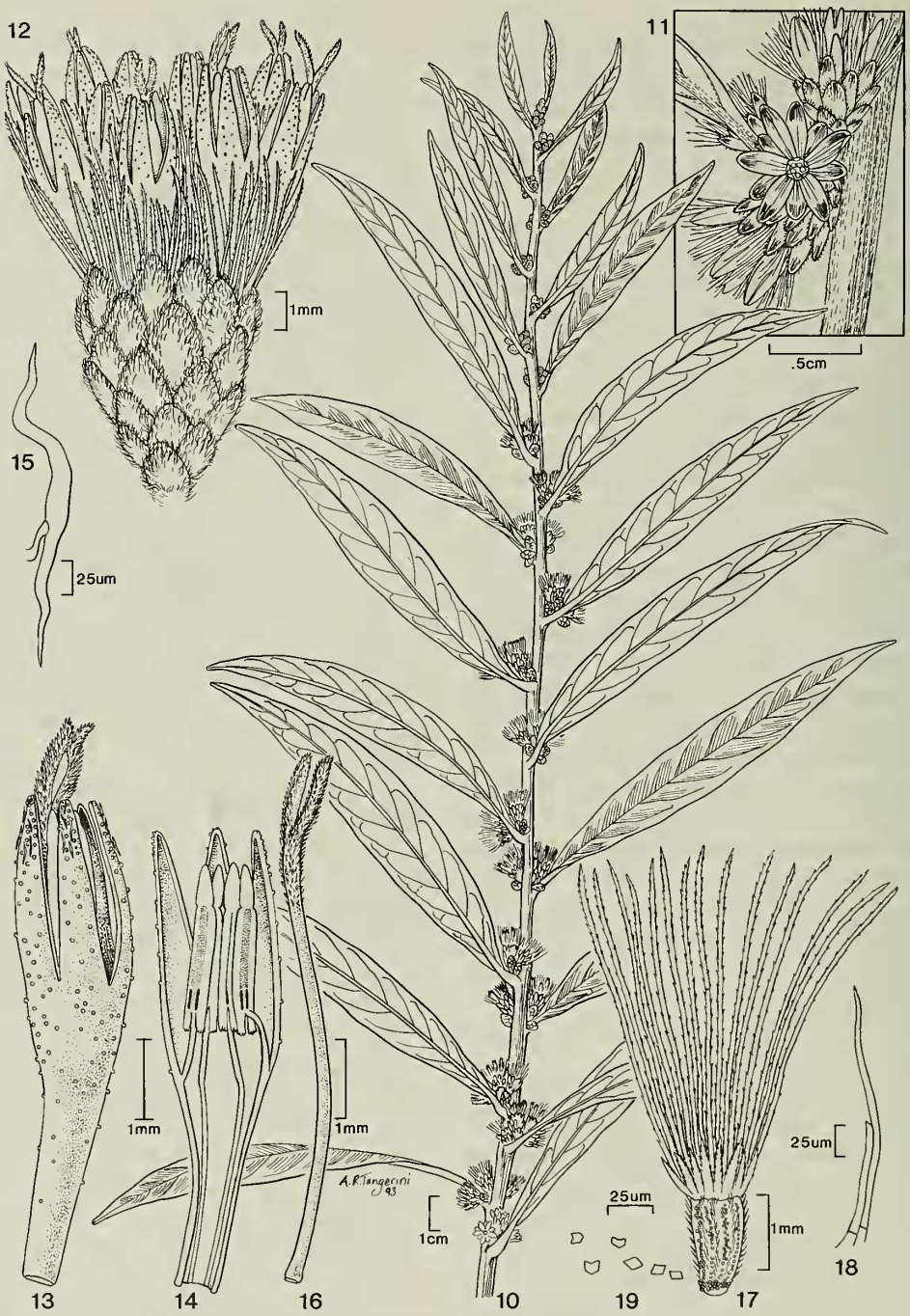
unusual T-shaped hairs (Fig. 9) in addition to the setulae and glands on the achene. The hairs have a long arm pointing upward and a shorter arm pointing downward. Such hairs have not been seen in a specimen from the State of Rio de Janeiro (Sucre 2488/Braga 330, single sheet, NY).

Pseudopiptocarpha H. Robinson, gen. nov.
Type: *Vernonia elaeagnoides* H.B.K.
Figs. 10–21

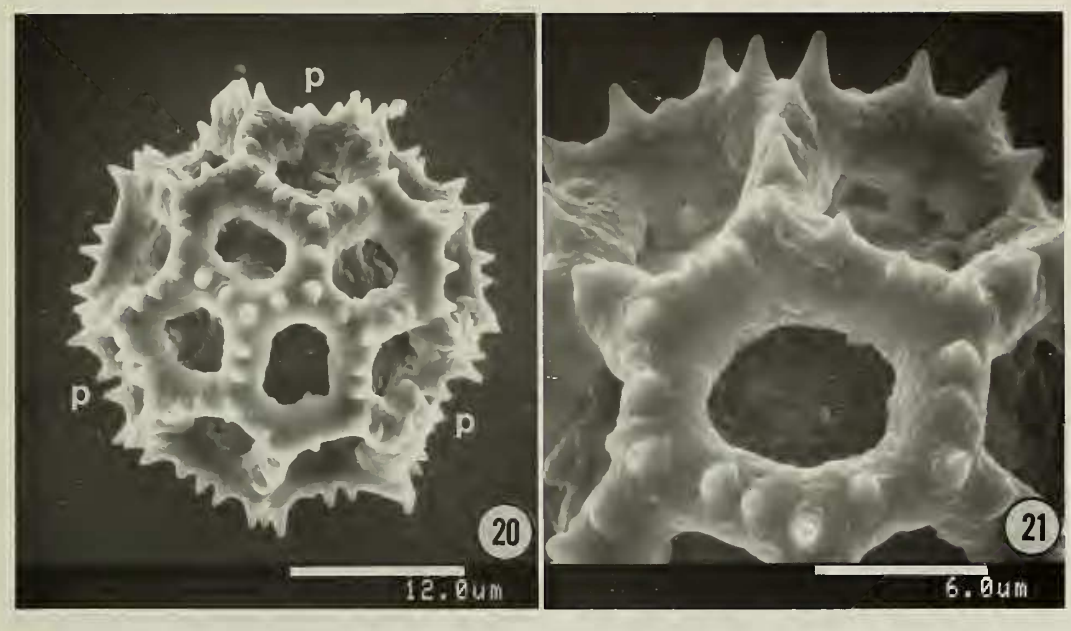
Plantae suffruticosae vel fruticosae ad 0.6–2.5 m altae pauce ramosae in caulibus in superficiis inferioribus foliorum et in inflorescentibus in pilis appresse T-formibus obsitae. Caules teretes vel vix angulati non fistulosi. Folia alterna, petiolis 0.3–1.5 cm longis; laminae subcoriaceae anguste lanceolatae vel late ellipticae base et apice anguste vel late acutae vel leniter acuminatae margine integrae supra parce pilosulae et impresse fuscescentiter glandulo-punctatae subtus dense pallide appresse piliferae, nervis secundariis pinnatis utrinque ca. 7–15 patentiter vel ascendentiter divergentes. Inflorescentiae axillares; capitula sessilia vel subsessilia 1–6 aggregata anguste campanulata 8–9 mm alta ca. 5 mm lata; bracteae involucri 25–30 persistentes gradatim auctae leniter induratae apice erectae appressae rotundatae extus parce vel dense pilosae; receptacula epaleacea. Flores 8–10 in capitulo; corollae pallide lavandulae vel roseae regulares anguste infundibulares ca. 6.5 mm longae extus plerumque glabrae, tubis ca. 3 mm longis, faucibus ca. 1 mm longis, lobis anguste oblongis ca. 3 mm longis distaliter paucie pilosulis, pilis subsessiliter T-formibus, nervis apice incrassatis; thecae antherarum 1.7–1.9 mm longae; appendices basilares truncatae subquadratae margine leniter dentatae in parietibus cellularibus firmae non incrassatae; appendices apicales antherarum ovatae ca. 0.7 mm longae glabrae in parietibus cellularum in partibus incrassatae; basi stylorum annuliformiter nodati; rami stylorum 1.5–2.0 mm longi antrorse pilosuli, pilis argute acutis. Achenia 1.5–2.0 mm longa 10-costata inter costas sinuate setulifera pauce glandulo-punctata et idioblastifera raphidibus subquadratis; carpopodia breviter obturaculiformia; setae pappi 30–35 albidae vel rubescentes facile deciduae ca. 4 mm longae apice latiores margine et extus scabridae; squamae exteriores oblongae 0.2–0.6 mm longae ca. 0.1 mm latae extus parce scabridae. Grana pollinis in diametro 40–45 μm tricolporata lophata Ayniaforma.

Pseudopiptocarpha is established for two species from Colombia that have been treated at different times as part of *Vernonia* Schreb. or, in the case of one species, as part of *Piptocarpha* R.Br. In annotations dated 1984, Gerald L. Smith, monographer of *Piptocarpha* (unpublished), rejected the one species from *Piptocarpha* and returned it to *Vernonia*. Smith's rejection is confirmed by the non-deciduous bracts of the involucre, the lophate form of the pollen, and the non-sclerified basal appendages or tails on the anther thecae.

Vernonia elaeagnoides H.B.K. and *V. schultzii* Karsten of Colombia differ from *Vernonia* by their lophate pollen and hairs on the corolla, both characteristics of the *Lepidaploa* relationship within the subtribe Vernoniinae. A few characters of phyletic value such as the subquadrate raphids of the achene wall indicate closest relation to *Aynia* H. Robinson (1988c) and *Lessingianthus* H. Robinson (1988a) of the *Lepidaploa* complex, and the firmness of attachment of the crests of the lophate pollen indicates baculate, non-rhizomatous pollen like that of the latter two genera, a feature confirmed by SEM observation (Fig. 21). The glands on the achenes are unlike most of *Lessingianthus,* which is concentrated in Brazil, and might indicate closest relationship to *Aynia* of Peru, which has the same type of lophate pattern on the pollen. The two Colombian species differ from both *Aynia* and *Lessingianthus* by having only 8–10 florets in their heads and the T-shaped



Figs. 10–19. *Pseudopiptocarpha eleagnoides* (H.B.K.) H. Robinson. 10. Habit; 11. Enlargement showing spreading involucre with persistent bracts; 12. Head; 13. Corolla showing tips of style; 14. ½ of corolla with included stamens; 15. T-shaped hair from involucre; 16. Style showing small basal node; 17. Achene with pappus; 18. Setula of achene; 19. Raphids of achene wall.



Figs. 20, 21. *Pseudopiptocarpha eleagnoides* (H.B.K.) H. Robinson, pollen. 20. Polar view with position of each of each of three pores indicated by a letter "p"; 21. Enlargement of crests showing subtending baculae.

hairs on their stems, leaves, and corollas. The T-shaped hairs occur in some species of the more distantly related genus *Lepidaploa* (Cass.) Cass. (Robinson 1990) in the group of genera with elongate raphids in the walls its achenes and rhizomatous crests in its pollen.

The two Colombian species are distinct from all other genera in the *Lepidaploa* complex by the often numerous small heads in the axils of large leaves and the partially sclerified cell walls of the apical anther appendages. The 10 or fewer florets in the heads distinguishes the pair of species from all genera of the complex except *Stenocephalum* Sch.Bip. (Robinson 1987a). The other genera rarely have as few as 10 florets in the heads. The heads of *Pseudopiptocarpha* often appear to be single or in pairs in the leaf axils, but closer examination shows many small buds that develop over a longer period of time. Apparently the axillary inflorescences are reduced branch systems. The number of heads is usually actually five or six, a higher number than is seen in other members of the *Lepidaploa* complex.

The type of echinolophate pollen pattern shared by the Colombian species and the genus *Aynia* has now been seen in five genera. Other isolated occurrences are in *Lepidaploa tovarensis* (Gleason) H. Robinson of Venezuela, some *Stilpnopappus* Mart. ex DC. and the monospecific *Harleya* Blake of Central America (Robinson 1990). The pattern superficially resembles the more common type D pollen with three supra-colpar areoles reaching the poles, but the three polar areoles in *Aynia* are aligned with the intercolpi rather than the colpi. The occurrence of the *Aynia* type areole pattern in *Lepidaploa tovarensis* differs in detail by having a rhizomate rather than purely baculate substructure of the crests.

The clusters of small axillary heads and the more sclerified apical anther appendages cause the two Colombian species of this study to resemble the genus *Piptocarpha,* and the former characteristic was evidently

a factor in the transfer of *Vernonia elaeagnoides* to that genus by Baker (1873). The resemblance of the Colombian species to *Piptocarpha* is phyletically misleading, but provides a basis for the new generic name, *Pseudopiptocarpha.*

The species of *Pseudopiptocarpha* are known only from Colombia at elevations between 400–1700 m. Specimens have been seen from the Departments of Cundinamarca, Huila, Santander, and Tolima.

Key to the species of *Pseudopiptocarpha*

1. Leaf blades linear to narrowly lanceolate, 0.6–2.0 cm wide; secondary veins short, spreading at only 35–45°, arched from near midvein; basal involucral bracts often obscured by pubescence; pappus usually reddish ..... *P. elaeagnoides*
1. Leaf blades elliptical to obovate, 2.3–9.3 cm wide; secondary veins elongate, spreading at 45–55°, straight near midvein; involucral bracts not totally obscured by pubescence; pappus bristles whitish or slightly sordid ..... *P. schultzii*

The two species of *Pseudopiptocarpha* are as follows:

Pseudopiptocarpha elaeagnoides (H.B.K.) H. Robinson, comb. nov.

Vernonia elaeagnoides H.B.K., Nov. Gen. Sp., ed. fol. 4:33. 1818. *Piptocarpha elaeagnoides* (H.B.K.) Baker in Mart., Fl. brasiliensis 6(2):126. 1873.

Vernonia micans Benth., Pl. Hartw. 196. 1845.

Distribution.—Colombia: Cundinamarca, Huila, Tolima.

The species was illustrated by one of the artists working for Mutis about the year 1800, and the illustration was first published in 1985 under the name *Vernonia rubricaulis* Humb. & Bonpl. (≡*Lessingianthus rubricaulis* (H. & B.) H. Rob.) (Díaz Piedrahita 1985:67, pl. 86, 87).

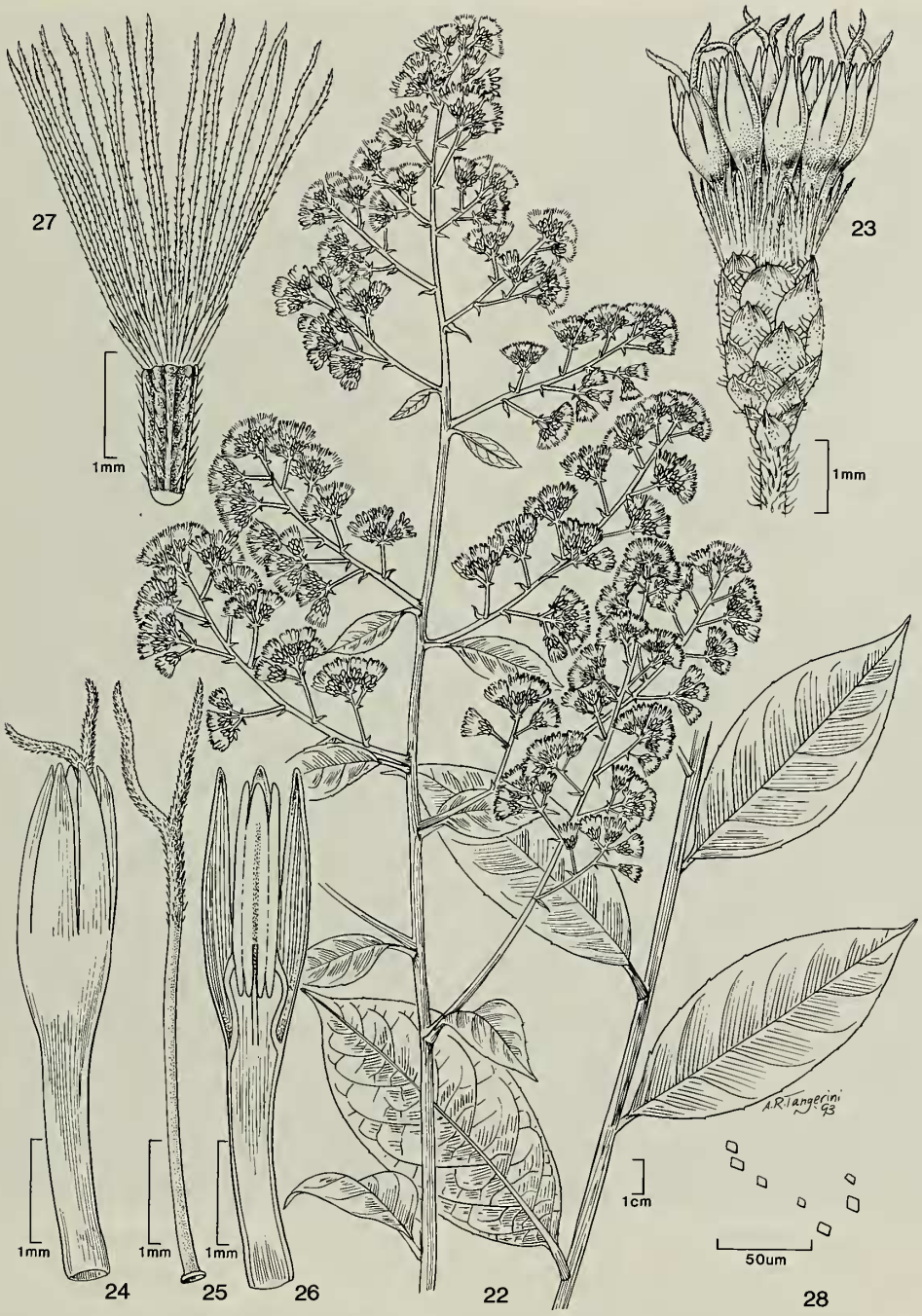
Pseudopiptocarpha schultzii (Karsten) H. Robinson, comb. nov.

Vernonia (*Vanillosma*) *schultzii* Karsten ex Sch.Bip., Linnaea 30:168. 1859.

Distribution.—Colombia: Cundinamarca, Huila, Santander.

Trepadonia H. Robinson, gen. nov.
Type: *Vernonia mexiae* H. Robinson.
Figs. 22–29

Plantae fruticosae scandentes ad 10 m longae. Caules brunnescentes teretes vix striati non fistulosi dense minute appresse puberuli, pilis uniseriatis base 1–5-septatis in cellulis apicalibus elongatis. Folia alterna, petiolis ca. 1 cm longis; laminae subcoriaceae oblongo-ovatae vel oblongae base rotundatae vel obtusae margine integrae apice acuminatae supra glabrae subtus appresse puberulae non glandulo-punctatae, nervis secundariis pinnatis leniter arcuate patentibus utrinque ca. 7, pilis brevibus. Inflorescentiae longe pyramidaliter thrysoideo-paniculatae in ramis subracemosae, ramulis unicapitulis vel glomerulate paucicapitatis; bracteis inflorescentiis minute foliiformibus vel subulatis, pedicellis 0.3–6.0 mm longis minute puberulis. Capitula homogama; involucra late campanulata 4–5 mm alta et 3–4 mm lata; squamae involucri ca. 25 persistentes erecto-appressae oblongae vel suborbiculares 1–4 mm longae et 0.7–1.0 mm latae apice rotundatae vel vix apiculatae extus glabrae vel subglabrae; receptacula epaleacea. Flores 8–10 in capitulo; corollae purpureo-rosae regulares anguste infundibulares ca. 5 mm longae extus praeter apicem loborum glabrae; tubis 1.5–2.0 mm longis, faucibus ca. 1.6–2.0 mm longis, lobis erectis non contortis lanceolatis ca. 1.3–1.5 mm longis et base ca. 0.4 mm latis apice pauce minute glanduliferis in



Figs. 22–28. *Trepadonia mexiae* (H. Robinson) H. Robinson. 22. Branch with inflorescence; 23. Head; 24. Corolla with included style; 25. Style with enlarged base; 26. ½ of corolla with included stamens, lines in lobes representing ducts; 27. Achene with pappus; 28. Raphids of achene wall.

laminis in canalibus resiniferis longitudinaliter multo striatis, nervis distaliter vix incrassatis; thecae antherarum ca. 1.5 mm longae base calcaratae rotundatae non appendiculatae; appendices antherarum apicales lanceolatae ca. 0.6 mm longae et 0.17 mm latae glabrae in parietibus cellularum non incrassatae; basi stylorum annuliformiter nodati; rami stylorum ca. 2 mm longi non glanduliferi hispiduli, pilis argute acutis. Achenia ad 2 mm longa 10-costata hispidule setulifera, setulis plerumque in partibus uniseriatis; raphidibus subquadratis; carpopodia doliformia ca. 0.15 mm longa et 0.3 mm lata; setae pappi ca. 35 albidae vel flavescentes subpersistentes plerumque 3.5–4.0 mm longae apice vix vel non latiores margine et extus dense scabridulae; squamae exteriores anguste oblongae 0.5–0.7 mm longae extus scabridulae. Grana pollinis in diametro ca. 35 μm tricolporata echinata in areolis omnino in tectis perforatis obsita.

Vernonia mexiae H. Robinson (1981) from Peru, has a scandent habit and a pyramidally thyrsoid inflorescence unlike most members of the tribe Vernonieae. The following analysis attempts to determine the proper relationship of the new genus in the tribe. Two of the neotropical subtribes of the Vernonieae have been considered in the present attempt, the Piptocarphinae and Vernoniinae.

The habit of *Vernonia mexiae* resembles some members of the subtribe Piptocarphinae, especially members of the genera *Piptocarpha* R.Br. and *Critoniopsis* Sch.Bip. (Robinson 1980, 1993a). However, the Peruvian species lacks the distinguishing characters of the Piptocarphinae, the deciduous inner bracts of the involucre, the thickened cell walls of the anther appendage, the usually extensively glanduliferous outer surfaces of the corolla lobes, and the often blunt-tipped sweeping-hairs of the style. The corymbose or axillary forms of inflorescence in the Piptocarphinae are unlike the pyramidal form with widely spreading racemiform branches in the Peruvian *Trepadonia*.

The subtribe Vernoniinae has recently been resolved mostly into two groups (Robinson 1992b). Of the two groups, the *Lepidaploa* complex differs from *Vernonia mexiae* by the usually lophate pollen with perforated tectum restricted to the crests, the hairy corolla lobes, and the elongate raphids in the wall of the achenes in most genera. *Vernonia mexiae* belongs to the other group of genera, including *Vernonia* Schreb. and *Vernonanthura* H. Robinson, having echinate pollen with perforated tectum continuous in the intercolpus, essentially glabrous corolla lobes, and subquadrate raphids in the achene walls. *Vernonia mexiae* is particularly linked to *Vernonanthura* by the presence of a series of longitudinal resin ducts in the central parts of the corolla lobes (Robinson 1992b). These ducts have been seen only in *Vernonia mexiae* (Fig. 29) and *Vernonanthura* (Figs. 30–32). The former species is strikingly distinct from *Vernonanthura* in its pyramidally thyrsoid inflorescences.

The form of the inflorescence is unusual for the whole tribe, with the elongate main axis and the racemiform branches bearing short corymbiform branchlets. The corymbose-cymose pattern of lateral branching seen in *Vernonanthura* is completely lacking. Also, in *Vernonanthura* the scandent habit has been noted only in *V. cocleana* (Keeley) H. Rob. of Panama. Many species of *Vernonanthura* differ by having distinct sterile appendages at the bases of the calcarate anther thecae.

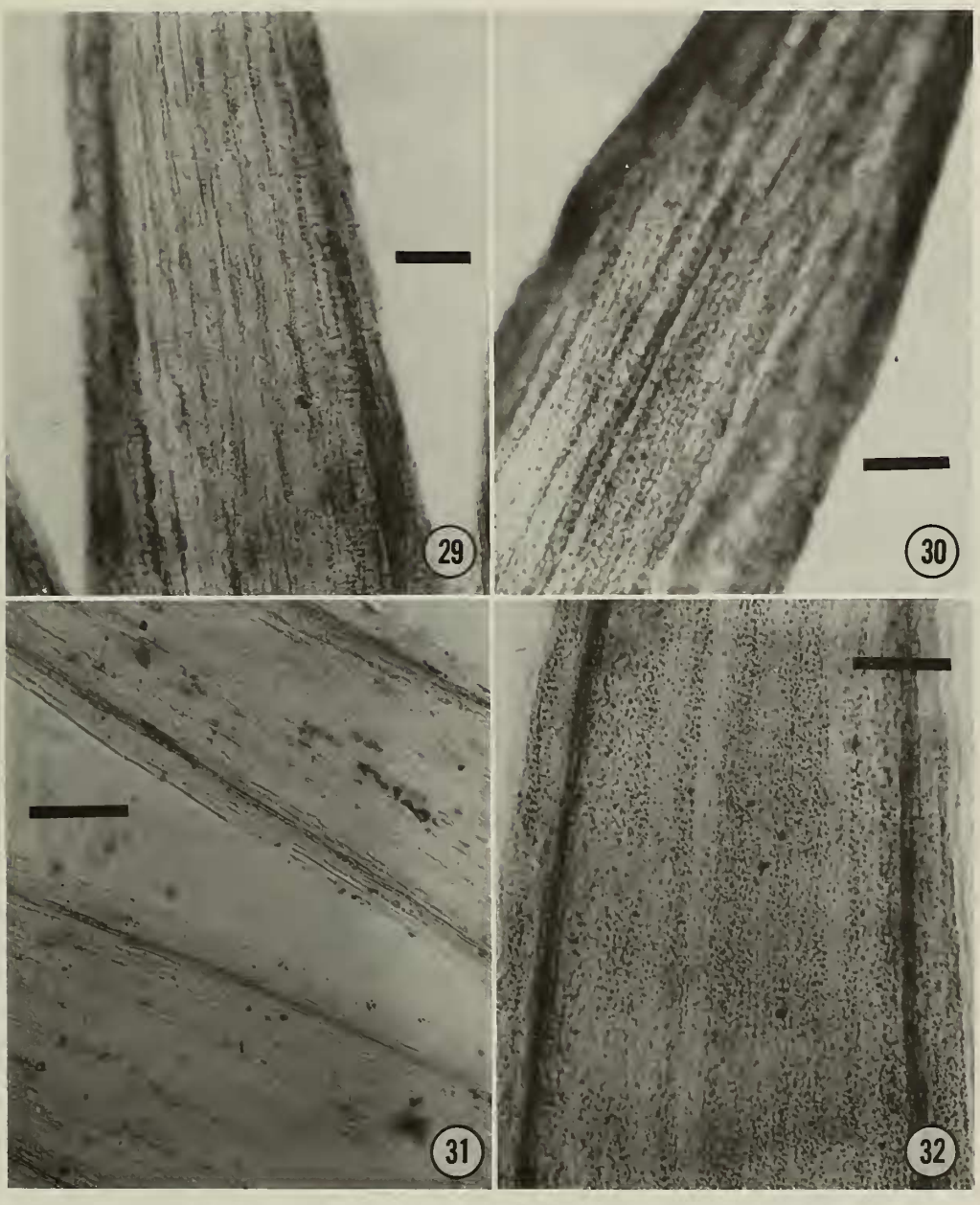
The new generic name is drawn from the Spanish word for climber, *trepadora,* with the ending from *Vernonia.*

The single species of the genus is as follows:

Trepadonia mexiae (H. Robinson) H. Robinson, comb. nov.

Vernonia mexiae H. Robinson, Phytologia 49:265. 1981.

Distribution.—Peru: Huánuco, San Martín.



Figs. 29–32. Corolla lobes of *Trepadonia* and *Vernonanthura* showing longitudinal resin ducts. 29. *Trepadonia mexiae* (H. Robinson) H. Robinson, Peru, Ferreyra 17483 (US); 30. *Vernonanthura brasiliana* (L.) H. Robinson, Brazil, Irwin et al. 17793 (US); 31. *V. laxa* (Gardner) H. Robinson, Brazil, Dusén 16708 (US); 32. *V. cymosa* (Vell. Conc.) H. Robinson, Brazil, Eiten & Eiten 2564 (US); scale bars = 100 μm.

The species shows some variation. The holotype from Huánuco has less elongate inflorescences with shorter branches, obtuse to rounded tips of the outer involucral bracts, obtuse and slightly crenulate tips on the apical anther appendages, and short, only partially biseriate setulae of the achene. Material from San Martín has more attenuate pyramidal inflorescences with long racemiform branches, more apiculate tips of the

outer involucral bracts, acute and subentire tips on the anther appendages, and longer, more strongly biseriate setulae on the achene.

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